< 0.001), cardiothoracic ratio (CTR, p < 0.01) and ventricular arrhythmias (p < 0.05) were also predictive of death. Plasma urea and creatinine (p < 0.05), serum sodium (p < 0.001) and abnormal liver function tests (bilirubin, p < 0.01) were found to be biochemical predictors of outcome. Multivariate analysis of the different variables showed customary activity scores (p < 0.001), reduced arterial pressure (p < 0.01), serum sodium (p < 0.001) and diuretic dose (p < 0.01) were the most powerful predictors of outcome. These results show that measures of daily activity are powerful predictors of death in patients with chronic heart failure. This could prove useful in predicting prognosis in patients considered unsuitable for standard exercise studies.

1015-30 Differences Between Cardiologists and Primary Care Physicians In Outpatient Management of Heart Failure

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We sought to identify differences in diagnostic methods, treatment, and costs in the outpatient management of patients with heart failure (HF). Included were all patients with HF cared for in an integrated system of neighborhood clinics affiliated with a public hospital ($n = 101$) during a one year period. Fifty-three of the patients were cared for by primary care physicians alone (group A), 25 by cardiologists alone (group B), and 23 were managed jointly (group C). Although there was no statistically significant difference in frequency of use of ACE inhibitors, group B were on significantly higher doses:

	A	B	C	p
Dose	49%	78%	47%	0.003(AvsB) 0.048(BvsC)

Dose = % maximum dose

Furthermore, there were significant differences for hospital days and number of imaging tests ordered:

	A	B	C	p
Hosp D	5.6	4.4	8.1	< 0.001
Tests	3.9	2.7	4.1	< 0.001

Hosp D = hospital days per patient per year; Tests = number of imaging tests per patient per year.

These data suggest that differences in treatment by subspecialists may result in lower medical costs in ambulatory HF patients.

1015-31 Differences in Practice Patterns in Managing of Heart Failure Between Cardiologists, Family Practitioners, and Internists

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Previous studies have demonstrated important differences between specialists and generalists in the treatment of cardiovascular diseases, but data concerning current management practices for heart failure (HF) are not available. To assess practice patterns and their relationship to recently released AHCPR guidelines, surveys were mailed to randomly selected groups (750 each) of family/general practitioners (FP), internists (IM) and cardiologists (CD), with an overall response rate of 56%. Data were analyzed using multivariate models, which identified specialty as the primary determinant of all practice differences. CD used echo as the primary diagnostic test more than IM and FP (48% vs 22% and 15%, respectively, p < 0.001) and chest X rays less (47% vs 68% and 73%, p < 0.001). CD measured LV function in 92% of patients, vs 69% [IM] and 61% [FP], both p < 0.001. In treating mild-moderate HF, CD were less likely to use diuretics alone as initial therapy (9% vs 17% [IM] and 22% [FP], p < 0.001), but of note is that all 3 groups used combination therapy as their initial approach in > 60%. CD used ACEI in significantly more of these patients (80% vs 71% [IM] and 59% [FP], both p < 0.001), and were also more likely to use digoxin, nitrates, and β-blockers. Similar trends were present for treatment of severe HF, with CD using ACEI in 89% of patients vs 84% [IM] and 76% [FP], also p < 0.001. In using ACEI, 75% of FP and 55% of IM stop at the lowest dose producing a response, whereas 78% of CD titrate to a target daily dose of enalapril ≥ 10 mg or the equivalent; CD are also more likely to use ACEI in the presence of baseline renal dysfunction.

These results indicate that there are significant differences between specialists and generalists in their approaches to diagnosing and treating HF, and that cardiologists conform more closely to practice guidelines.

1015-32 Peak VO_2 Is Superior to 6 Minute Walk for the Prediction of Survival in Patients With Heart Failure

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Measurement of peak VO_2 has become an accepted method to select ambulatory patients for cardiac transplantation (TXP). However, this test requires sophisticated, expensive equipment and is not widely available. The 6 minute walk test is an inexpensive and easily performed test, and has been shown to predict survival in patients with mild to moderate heart failure. However, its ability to predict survival in patients with more advanced disease is unknown. Accordingly, we measured 6 minute walk and peak VO_2 on 126 pts (106 men, 20 women; 71 nonischemic, 55 ischemic; age 53 ± 10 yrs) with advanced CHF (LVEF 22 ± 9%; CI 2.0 ± 0.6 L/min; PCW 20 ± 9 mmHg) referred for TXP. Survival (freedom from death or UNOS status 1 TXP) was 69 ± 5% and 50 ± 7% at 1 and 2 yrs (median survival 623 days). 6 minute walk was compared to peak VO_2 using chi-square analysis and Pearson's correlation coefficient. The predictive value of each measure was assessed by comparing Kaplan-Meier survival curves (log rank test [LR]) and univariable Cox models.

VO_2 ranged from 8.3–27.7 (16.2 ± 3.9) ml/kg/min and 6 minute walk ranged from 201–664 (435 ± 79) meters. 6 minute walk strata (< 350 m, 350–450 m and > 450 m) were significantly associated with peak VO_2 strata (< 14 and ≥ 14 ml/kg/min)($\chi^2 = 29.5$, $p < 0.001$), with a moderate correlation over the entire range of values ($r = 0.59$, $p < 0.001$). However, peak VO_2 was predictive of survival ($p = 0.01$ [Cox] and $p = 0.004$ [LR]) whereas 6 minute walk was not ($p = 0.20$ [Cox] and $p = 0.44$ [LR]).

In conclusion, 6 minute walk does not accurately predict mortality in advanced heart failure and should not replace peak VO_2 for the selection of suitable candidates for cardiac transplantation.

1015-33 Acute Reversibility of Pulmonary Hypertension Predicts Neither Long Term Hemodynamic Response nor Outcome in Patients Awaiting Heart Transplantation

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We have previously shown that longterm reversibility of pulmonary hypertension (PHT) may correlate with a favorable prognosis in endstage heart failure (ESHF) patients (pts) waiting heart transplantation (Tp). To determine if initial acute hemodynamic response to iv nitroprusside (NPR) similarly predicted longterm results to medical therapy, we analyzed the initial, the initial NPR-treated, and final right heart cath (RHC) data of serial 3-monthly pre-Tp RHC in 17 consecutive pts on the Tp wait list, followed for 13 ± 9 months, whose initial systolic pulmonary artery pressure (SPA) was > 60 mmHg or pulmonary vascular resistance (PVR) > 3 WU. All 17 pts achieved a pulmonary vasodilatory response to NPR (Initial = > NPR: SPA 67 ± 13 = > 53 ± 15 mmHg, PCWP 26 ± 8 = > 18 ± 9 mmHg, PVR 4.8 ± 1.9 = > 2.7 ± 0.8 WU, p < 0.005). 10/17 pts required Tp, 7/17 pts were removed from the Tp wait list due to clinical improvement.

	Transplanted (n = 10)				Delisted (n = 7)			
	Initial	NPR	Final	pIvsNP	Initial	NPR	Final	pIvsN
SPA	69 ± 13	58 ± 14	60 ± 17	0.001	64 ± 14	47 ± 15	33 ± 5	0.005
PCWP	27 ± 8	21 ± 9	24 ± 8	0.03	25 ± 9	16 ± 7	11 ± 4	0.003
PVR	5.3 ± 2	2.7 ± 0.5	3 ± 1.4	0.003	4 ± 1.3	2.7 ± 1	2.2 ± 0.9	0.01

± S.D.

Initial and NPR hemodynamics of both groups were comparable (p = NS). Whereas Tp pts failed to sustain the initial NPR response in follow up (Tp IvsF p = NS), delisted pts continued to improve their acute hemodynamic response on medical therapy in follow up (Delist IvsF p = 0.002).

Thus for ESHF pts on a TP wait list the acute pulmonary vasodilatory response to NPR does not predict the longterm hemodynamic response. Unlike longterm reversibility of PHT, the acute NPR vasodilator response was not predictive of subsequent continued need for Tp vs clinical improvement and delisting.

1015-34 Muscle Pump Dependent Self-Perfusion Mechanism in Exercising Legs in Normal Subjects and Chronic Heart Failure

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Venous pressure in the leg markedly falls during exercise (EX) via a muscle